DOCUMENT RESUME

ED 083 161 SP 006 947

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TITLE A Theoretical Basis for Organization of Curriculum.
NOTE 13p.

EDRS PRICE MF-$0.65 HC-$3.29
DESCRIPTORS *Curriculum; Curriculum Development; *Curriculum Research; Logic; Psychology; Theories

ABSTRACT

This article proposes a new look at an old dispute in the area of curriculum theory, that of logical and psychological organization. First, erroneous assumptions about both of these forms of organization are examined. Unwarranted associations with the immaturity-maturity continuum, the process-product distinction, and the intellectual-practical dichotomy are pointed out. The paper sets forth a position, describing how logical and psychological considerations apply to the process of education. A theory of curriculum organization is developed which integrates both of these considerations. (Author)

# A THEORETICAL BASIS FOR ORGANIZATION OF CURRICULUM

by
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The history of education is marked with disputes about curriculum. The character and sequencing of the various experiences undergone by the learner have been a frequent source of disagreement among educators. At the present time, advocates of the "open concept" and "free" schooling vie with defenders of traditional patterns of instructional organization.

On the surface, such disagreements may appear to be concerned with teaching technique. At a deeper level, however, the question of the theoretical basis of curriculum organization is involved. It is well to examine one's beliefs regarding curriculum from a philosophic viewpoint--to push below the surface of the immediate and the specific.

Throughout the twentieth century, a disagreement between two opposing viewpoints has persisted under various forms. It may be termed the dispute over logical versus psychological organization of curriculum. The "logical" position is the older, traditional view. It was originally based on the idea that nature antecedent to inquiry has a logical order which man may discover. When this notion of inherent order was challenged in modern times, logical organization of curriculum came to be identified with the ordered results of scholarly inquiry.

The "psychological" viewpoint arose with the developing science of psychology and the rise of the progressive education movement early in

this century. It placed its emphasis on the child and his learning process, rather than on logical arrangement of subject matter.

In the continuing dispute, one or the other of these two viewpoints was stressed as more important to the pedagogic task. Psychology offered its findings to educators, who applied these findings to the development of curricular designs. Traditional educators countered with emphasis on the need for logically organized curriculum.

While the roots of this latter viewpoint go back many centuries, it may be identified with the traditional, subject-centered school of the nineteenth and early twentieth centuries. It valued "discipline," "order," and "subject matter." Its curriculum organization offered the refined products of the expert or scholar to the learner as a model. The learner was involved in rehearsing the activity of the more accomplished expert, or more often in memorizing the refined products. The underlying assumption in the traditional logical curriculum was that through such activities the learner would thereby become logical in his own efforts. The traditional logical curriculum organization either ignored psychological concerns or tended to assume that those concerns could be cared for by preoccupying the learner with the products of the scholarship or expertise per se which embodied the desired logical criteria.

Because of the important place of the products of the mature scholar in the traditional, logically organized curriculum, this form of curriculum organization often was associated primarily with maturity, in contrast to the immaturity of the child. This paper will attempt to show that logical considerations are of no less importance in considering the efforts of the

immature child than in considering the products of the mature adult. These considerations function as norms with which to assess the efforts of the child. For the competent adult, logical considerations are more descriptive, in contrast to their prescriptive status in respect to the behavior of the immature child.

The traditional logical organization of the subject-centered school also tended to favor certain pursuits to the exclusion of others. These favored pursuits, which were generally regarded as "intellectual," as opposed to "practical," had been a part of the school curriculum for centuries, including mathematics, languages, literature, and history. Theoretical science was a fairly recent addition. According to the position taken in this paper, however, the association of logic exclusively with these traditionally favored pursuits is unjustified. Logical considerations arise in the carrying on of any pursuit.

Further, in its concern with having the outcomes of the learner's efforts conform to the logically refined products of the scholar or expert, the "logical" viewpoint tended to focus on products more than on process. Often this was more simply stated as an emphasis on "subject matter." In so doing, it overlooked both the psychological considerations that bear on the guidance of the learner's process and the need to reshape that process in the light of logical principles.

The traditional psychological curriculum appeared as a reaction against this preoccupation with the logically ideal product. In contrast to the earlier emphasis on "subject matter," the psychological emphasis

curriculum design was viewed as being "child-centered." It opposed the substitution of the scholar's logically refined products for the experience of the learner, and emphasized instead the efforts of the learner.

Thus, just as the traditional logical organization was by itself incomplete through its failure to respect the learner's experience, so too was this newer position, which insisted on viewing the learning experience only from a psychological standpoint to the neglect of a logical one.

In their concern with psychological principles, the advocates of the newer school of thought tended to focus on the sequence of learning experiences rather than on the result, or, as sometimes more crudely put, on "the child" instead of on the "subject matter." In viewing the learning experience primarily from the standpoint of psychological principles, they neglected the logical consideration of the learner's ability to make an intelligent selection and use of means to achieve desired ends.

Thus, traditional psychological organization, in its concern for direct experience with a pursuit by the learner, tended to emphasize process more than product (just as logical organization had emphasized product over process). In so doing, it tended to neglect both the quality of the product of the learner's efforts and the character of his process as viewed from the logical standpoint.

Perhaps because of its concern to have the learner directly involved in the process by which the products of a pursuit are made, psychological organization was often associated chiefly with "practical"

pursuits. These pursuits were usually some type of vocational activity, having some product of a utilitarian nature. Gardening, carpentry, sewing, and cooking were often offered as examples of the type of pursuit in which the learner would be involved. These "practical" activities supposedly satisfied a psychological requirement by providing continuity of the learning experience with antecedent experience. They were those that the learner of the time would likely have already come in contact with through experiences outside the school. Thus, instruction would be based on the psychological consideration that best learning results when the learning experience relates to what has been previously learned.

The psychological principles governing learner interest probably also furthered this association of psychological organization with "practical" activities. As a result, "learning by doing" quite often was thought to mean involvement with some "practical" occupation. Just as the association of traditional logical organization primarily with intellectual pursuits represented too narrow a position, so also did this view, in the opposite direction. Psychological considerations (like logical ones) arise in the learning of any pursuit, not merely the practical.

Since the emphasis in the traditional psychologically organized curriculum was on the efforts of the child, this form of organization was often associated with immaturity. This was a counterpart of the view referred to earlier which linked maturity with the traditional logical curriculum. The position taken in this paper is that psychological considerations are of no less importance in the study of the behavior of

the mature adult than in the study of the immature child. Thus the distinction between logical and psychological organization is not equivalent to one of levels of maturity.

To summarize briefly, psychological organization, as viewed in this paper, is not solely identified with immaturity, or "practical" pursuits, or process. Likewise, logical organization, as viewed here, is not equated with maturity, or "intellectual" pursuits, or product. In a sense, these are separate dimensions which cut across one another in the educational process. If these distinctions are kept in mind, the educator will not make the further error of associating practical pursuits primarily with immaturity and intellectual pursuits mainly with maturity.

Having briefly sketched the history of this disagreement over curricular organization, and exposed some erroneous assumptions made by both sides, it is now appropriate to offer a conception of curriculum organization which will serve as a theoretical frame or base for the understanding of curriculum design, avoiding the errors pointed out above.

In any study of curriculum organization it is necessary to make clear what is meant by the term "curriculum." In this paper, the term "curriculum" refers to the planned sequence of experiences undergone (or to be undergone) by the learner. This sequence of experiences is to be distinguished from a variety of materials used in the learning experience such as textbooks, readings, laboratory equipment, and so on. These materials are more properly referred to as curricular resources.

The sequence of experiences undergone by the learner, i.e. the curriculum, may be examined from both the logical and psychological viewpoints. These same two viewpoints can be applied to curricular resources also.

Each of these two viewpoints may be elaborated in the form of criteria or principles. Logical criteria or principles arise from the inquiries of the logician. Psychological criteria or principles are generated through the efforts of the psychologist. Both of these types of principles are available to the educator for use as analytical tools in providing guidance to the learner. Thus it would seem that logical and psychological do not name two separate forms of organization, but rather two different viewpoints from which to consider the same process and products of education. For the educator, logical and psychological designate two different sets of criteria or principles by means of which to view and redirect the learner's experience.

In its largest sense "logical" refers to the process and products of experience insofar as they involve the use of means to achieve desired ends. In this sense, "logical" is equivalent to rational or reasonable. Dewey notes that "it is reasonable to search for and select the means that will, with the maximum probability, yield the consequences that are intended." [1] Rationality is an affair of the relation of means and consequences. In this general sense, to be logical is to be rational. "Logical" refers to a selection of means to attain a desired end, and to a continuous review of the process to insure that this means-end relationship is being maintained and improved, where possible. Thus the logical viewpoint may be applied to both the sequence and outcomes of experience.

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[1] John Dewey, Logic, The Theory of Inquiry (New York: Henry Holt and Company, 1938), pp. 9-10.

The whole question of "logical," in the sense used here, is associated with the concept of competence. This is because competence in a pursuit signifies capability in the use of means to achieve ends in that pursuit. As increased capability in the selection and use of means to reach desired outsomes is achieved, we say that a person becomes more competent in that pursuit, and hence, his efforts are more logical.

In the most generalized formulation, logical criteria or principles are applicable to the process or products of any type of pursuit, whether intellectual, aesthetic, practical, or whatever. However, these may often not be stated explicitly, but implied in the way a given product is constructed and in the critical, evaluative comments made regarding the product. In the knowledge pursuit, a number of these principles have been stated in terms of the requirements of that pursuit. Several are offered as examples of logical criteria (although it must be remembered that basic logical considerations apply to <u>all</u> pursuits). One principle in the knowledge pursuit is that to ground a conclusion evidence must be exhaustive sustaining one and only one interpretation. Another is that the elements of a conclusion must be stated in an equation, and that these components must be such that some gain in utility is had in substituting one for another in carrying on the pursuit. These two instances are not exhaustive but are merely offered as specific examples of logical criteria within a given pursuit.

The psychological point of view is concerned with the sequence of experience, regardless of whether or not that course of experience is logical. Any course of experience occurs in accordance with psychological principles, and if it is to be successfully redirected these principles must be heeded.

The efforts of the psychologist result in principles which explain how behavior occurs, what procedures to employ to influence or redirect it, and the process one undergoes when learning. Various principles concerning the relationship of learning to intellectual development, previous learning, individual differences, and appropriate reinforcement, to cite a few areas, have been worked out through psychological inquiry.

Thorndike's Law of Effect may be used as an example of the type of principles operative in the psychological concern. The law asserts that when a response and a certain environmental event, usually generated by the response, occur approximately simultaneously, the probability of the same type of response occurring again will increase or decrease as the organism finds the resulting state of affairs satisfying or annoying. [2]

The aim of the educator is to make the learner's experience more logical. To achieve this aim, the educator must make use of psychological as well as logical principles. Both the process and products of the learner's experience can be examined from both the logical and the psychological viewpoints.

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[2] Edward L. Thorndike, Educational Psychology, Vol. II (New York: Teachers College, Columbia University, 1913), p. 4.

As he assesses the process of education and its outcomes, the educator has a different viewpoint than that of either the psychologist or the logician. The logician and the psychologist are engaged in theoretical pursuits. The teacher in a sense is a consumer of the product of their inquiries, appropriating their principles for use in his specific task of guiding the experience of the learner. The pedagogic viewpoint treats both logical and psychological principles as standpoints from which to study the educational process. Both types of considerations are appropriate throughout the educational process, in selection and organization of materials, in guidance of the process, and in review and evaluation of the process and its outcomes.

For example, there are several ways in which logical considerations apply to the materials involved in the pedagogic task. The subject matter of instruction derived from the learning of the advanced scholar must exhibit conformance to logical principles. In many cases, it will be necessary for the student to accept these on faith, since it would be too time-consuming to repeat the process of this learning in each instance. It is necessary, however, that in some instances the student be involved in the process by which this learning was attained.

Logical considerations also apply to the order or sequence in which the student is to encounter the material. The teacher is able to anticipate the steps the learner needs to take in working his way through a problem, and the teacher arranges the material in a sequence that provides for the early introduction of material that is to be used in subsequent steps. As the learner goes through a series of problem-solving situations, this pre-arranging of materials by the teacher is gradually decreased, as the

student learns to do more of the selection and organization of materials on his own. He thus becomes gradually less dependent on the teacher as he learns to order his own material to satisfy logical considerations.

Finally, the products of the learner's own efforts are reviewed by the teacher as they are evaluated with respect to logical principles. The same logical considerations by which the products of the scholar or expert are assessed also apply to the efforts of the less competent student. They need not be applied as rigorously however, but the aim of the educator is that these outcomes move in the direction of approximating those of the scholar or expert.

The teacher must also diagnose the learning process. The learner's difficulties may arise from several sources. Psychological criteria may not be met, the arrangement of the material from a logical standpoint may be faulty, or the learner may be proceeding in an illogical manner. In the course of this diagnosis, the complex learning experience is analyzed into stages of process-product, process-product, and so on. In evaluating the learner's efforts from the logical standpoint, the product is examined to determine whether it will serve as means to carry on with the process. If not, the teacher must make his diagnosis from both logical and psychological viewpoints to determine what the difficulty is and to make appropriate modifications to correct the difficulty.

In summary, the curriculum is seen as a sequence of experiences, undergone by the learner, with "logical" and "psychological" being two viewpoints from which to examine this sequence of experiences. The organization of a curriculum can be considered from the standpoint of logic and of psychology. Further, these two ways of considering organization may be viewed from the standpoint of both the learner and the teacher.

From the standpoint of the learner, curriculum organization is psychologically satisfactory in so far as it is organized in accordance with psychological principles of learning concerning such factors as reinforcement, intellectual development, needs, and interests. It is logically satisfactory in so far as it exhibits competence in the selection and use of means to achieve ends.

From the standpoint of the teacher, or one who is involved in the pedagogic task, curriculum organization is psychologically satisfactory if it respects sound psychological principles in the effort to redirect the course of the learner's experience. From the same standpoint, it is logically satisfactory if it serves to fulfill the ends of the pedagogic task--if the means chosen to redirect the course of the learner's experience result in the learner being able to direct his own experience in a more logical manner. To fulfill this task, both logical and psychological considerations must be heeded.

## NOTES

1. John Dewey, Logic, The Theory of Inquiry, (New York: Henry Holt and Company, 1938), pp. 9-10.

2. Edward L. Thorndike, Educational Psychology, Vol. II, (New York: Teachers College, Columbia University, 1913), p. 4.